REMARKS

In a final Office Action dated April 7, 2008, the Examiner rejected claims 1-14, 16-26, 28-36, 38-40, 45, and 50 under 35 U.S.C. §103(a) as being unpatentable over Luschi et al. (U.S. patent application publication no. 2003/0045288, hereinafter referred to as "Luschi") in view of Kadaba et al. (U.S. patent no. 7,158,504, hereinafter referred to as "Kadaba"). The Examiner rejected claims 15, 27, and 37 under 35 U.S.C. §103(a) as being unpatentable over Luschi in view of Kadaba and further in view of Gopalakrishnan et al. (U.S. patent no. 6,836,666, hereinafter referred to as "Gopalakrishnan"). The Examiner rejected claims 41-44 and 46-49 under 35 U.S.C. §103(a) as being unpatentable over Kadaba in view of Gopalakrishnan. The rejections are traversed and reconsideration is hereby respectfully requested.

New claims 53 and 54 have been added to the specification. Support for these claims may be found in FIG. 11 and on page 22 of the specification.

35 U.S.C. §103(a) rejection of claims 1-14, 16-26, 28-36, 38-40, 45, and 50 as being unpatentable over Luschi in view of Kadaba

The Examiner rejected claims 1-14, 16-26, 28-36, 38-40, 45, and 50-52 under 35 U.S.C. §103(a) as being unpatentable over Luschi in view of Kadaba. Claim 1 has been amended to provide a method for scheduling mobile station (MS) uplink transmissions by a base station (BS) that includes selecting an MS of multiple MSs, determining an uplink channel scheduling assignment for the selected MS, and transmitting the uplink channel scheduling assignment to the selected MS, wherein the uplink channel scheduling assignment includes a maximum traffic channel to control channel power ratio that the MS is allowed to use in a subsequent transmission. These features are not taught by Luschi or Kadaba.

The only uplink power control information specifically taught by Luschi as being conveyed by a BS to an MS is the conveyance, in a DPCCH over a DPCH, of Transmit Power Control (TPC) bits for the DCDCH (paragraph 0066). TPC bits strictly control a next transmit power by the MS, that is, tell the MS exactly what its next transmit power should be. For example, typically a TPC bit instructs an MS to increase or decrease the

MS's transmit power by a pre-determined increment. Kadaba, to the extent it teaches power control of an MS, teaches nothing more than Luschi.

By contrast, claim 1 teaches a conveyance of a maximum traffic channel to control channel power ratio that the MS is allowed to use in a subsequent transmission, thereby leaving it up the MS to select a power for a subsequent transmission. That is, by providing an MS with a maximum power allowed rather than dictating a power level to an MS, the teachings of claim 1 allow the MS to select its own power level as part of a self-scheduling and facilitates the MS's ability to select a BS from among different base stations (BSs) depending upon what possible combinations of power levels, modulation schemes, and coding rates are allowed at each BS.

Therefore, neither Luschi nor Kadaba teaches the features of claim 1 of transmitting an uplink channel scheduling assignment to a selected MS, wherein the uplink channel scheduling assignment includes a maximum traffic channel to control channel power ratio that the MS is allowed to use in a subsequent transmission. Accordingly, the applicants respectfully request that claim 1 may now be passed to allowance.

Since claims 2-10 depend upon allowable claim 1, the applicants respectfully request that claims 2-10 also may be passed to allowance.

Claim 11 has been amended to include the features of claim 25 and claim 25 has been canceled. In rejecting claim 25, the Examiner contended that Kadaba teaches the features of claim 25 of conveying BS interference information to a selected MS via a forward link control channel (col. 1, lines 54-65, col. 3, lines 22-30, and col. 7, lines 8-65). The applicants respectfully disagree. None of these sections of Kadaba makes any explicit reference to an exchange of interference information, let alone to a BS conveying BS interference information to a selected MS. That is, column 1, lines 54-65, teaches that a receiver measuring a signal-to-interference ratio to determine a supportable data rate, column 3, lines 22-30, teaches a forward link conveyance of a scheduling grant, data rate, and acknowledgement, and column 7, lines 8-65, details the teachings of column 3, lines 22-30, that is, describes forward link control channels that are used to

convey the scheduling grant and acknowledgement and to control a data rate and transmit power of an MS. In each of these sections, Kadaba teaches a BS measuring and scheduling an MS, rather than providing the MS with information that the MS may use to do its own scheduling/BS selection.

Therefore, neither Kadaba nor Luschi, individually or in combination, teaches the features of claim 11, as amended, of a method for scheduling an MS transmission that includes conveying BS interference information to the selected MS via a forward link control channel and receiving, by the BS from the scheduled MS, a first transmission of data, which transmission of data is conveyed by the MS during the transmission interval and comprises transport format and resource-related information (TFRI). Accordingly, the applicants respectfully request that claim 11 may now be passed to allowance.

Since claims 12-24 and 26-28 depend upon allowable claim 11, the applicants respectfully request that claims 12-24 and 26-28 also may be passed to allowance.

Claim 29, as amended, provides a method for transmitting data by an MS including receiving, at the MS, interference information associated with, and conveyed to the MS by, a BS and determining, by the MS, transport format and resource-related information (TFRI) based on the received interference information. In rejecting claim 29, the Examiner contended that Luschi teaches, in paragraphs 0015, 0027, 0046, and 0060, receiving, at an MS, interference information associated with a BS. The applicants respectfully contend that none of the cited paragraphs teaches receiving, at the MS, interference information associated with, and conveyed to the MS by, a BS.

Paragraphs 0015 and 0027 merely teach minimization of interference by minimizing control data transmissions. That is, paragraph 0015 teaches multiple dedicated control channels and that interference is minimized by not conveying data in these channels when there is no data to convey, and paragraph 0027 merely states that interference is minimized by selective transmission of control information. Paragraph 0046 teaches conveyance of an MCS, a channel code, and HARQ parameters to an MS for downlink scheduling. The only channel quality information exchanged is downlink channel quality measured by the MS and conveyed to, and received by, the BS. And

paragraph 0060 teaches a conveyance of power control bits. None of these sections of Luschi teaches providing, by a BS to an MS, interference information measured at the BS. And the only uplink transmissions taught by Kadaba are a scheduling grant, an acknowledgement, and a data rate and transmit power of an MS.

Therefore, neither Kadaba nor Luschi teaches the features of claim 29 of receiving, at an MS, interference information associated with, and conveyed to the MS by, a BS. Accordingly, the applicants respectfully request that claim 29 may now be passed to allowance. Since claims 30-40 depend upon allowable claim 29, the applicants respectfully request that claims 30-40 also may be passed to allowance.

Referring now to claim 45, in rejecting claim 45 the Examiner contended that Luschi teaches a method for controlling communications with an MS by a BS including steps of storing, by a BS, traffic data from an MS in a traffic data buffer (paragaphs 0047 and 0056). The Examiner acknowledged that Luschi does not teach transmitting, by the BS, first control data to the MS on a downlink control channel, upon transmitting the first control data, starting, by the BS, a timer, and when a predetermined period of time expires prior to receiving second control data from the MS on an uplink control channel, flushing the traffic data buffer. However, the Examiner contended that these features are taught by Kadaba (col. 10, line 27, to col. 11, line 13; col. 12, line 14, to col. 13, line 7).

In response to the applicant's arguments that these features are not taught by Kadaba, the Examiner contended that FIG. 7 (corresponding to col. 10, line 27, to col. 11, line 13) of Kadaba teaches an MS waiting for an F-UCACH acknowledgment, resetting a timer if the acknowledgement is not received, again waiting for an F-UCACH acknowledgment, and if no acknowledgment is received then re-transmitting traffic data unless the traffic data buffer is empty.

The applicants believe that these features do not teach claim 45. The teachings here of Kadaba are an MS that transmits traffic data, sets a timer, waits for an acknowledgment, and re-transmits old data (if no acknowledgement) or transmits new data (if an acknowledgement is received). By contrast, the teachings of claim 45 concern the other end of the air interface and the traffic data transmission, that is, a BS that stores

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traffic data from an MS in a traffic data buffer, sets a timer, waits for control data from the MS, and then flushes the buffer. As for column 12, lines 14-42, and column 12, line 43, to column 13, line 7, of Kadaba, both sections teach a BS flushing a buffer in response to receiving a command to do so from the MS, not due to an expiration of a timer at the BS. The teachings of Kadaba require a buffer flush instruction from the MS. The teachings of claim 45 do not.

Therefore, neither Luschi nor Kadaba, individually or in combination, teaches the features of claim 45 of storing, by the BS, traffic data from an MS in a traffic data buffer, starting, by the BS, a timer upon transmitting control data to the MS, and flushing the traffic data buffer when the timer expires prior to receiving control data from the MS. Accordingly, the applicants respectfully request that claim 45 may now be passed to allowance.

Referring now to claim 50, in rejecting the claim the Examiner contended that Luschi provides a method for controlling communications with a MS by a BS. The Examiner acknowledged that Luschi fails to teach any of the other features of claim 50; however, the Examiner contended that such features are taught by Kadaba. That is, the Examiner contended that Kadaba teaches transmitting, by the BS, first control data to the MS on a downlink control channel (col. 7, lines 8-61), upon transmitting the first control data, starting, by the BS, a timer, and when a predetermined period of time expires prior to receiving second control data from the MS on an uplink control channel, deallocating, by the BS, demodulation resources allocated to a first uplink control channel associated with the MS while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the MS (col. 10, line 27, to col. 11, line 13; col. 12, line 14 to col. 13, line 7).

In response to the applicant's previous arguments that these features are not taught by Kadaba, the Examiner contended that FIG. 7 (corresponding to col. 10, line 27, to col. 11, line 13) of Kadaba teaches an MS that waits an F-UCACH acknowledgment, resets a timer if the acknowledgement is not received, again waits for an F-UCACH acknowledgment, and if no acknowledgment is received then re-transmits traffic data unless the traffic data buffer is empty.

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The applicants believe that these features do not teach claim 50. First, the teachings detailed by the Examiner Kadaba concern actions at an MS. The referenced processing circuitry is processing circuitry of the MS. By contrast, claim 50 concerns action taken at a BS. Also, column 12, lines 14-42, and column 12, line 43, to column 13, line 7, of Kadaba merely teach buffer flushing (by a BS in response to receiving a command to do so from the MS). A flushing of a buffer merely clears up storage space and is not a deallocation of the buffer. Nothing here teaches a resource deallocation, let alone a selective deallocation, at a BS, of some but not all of multiple control channel demodulation resources associated with an MS. Furthermore, the buffer is flushed in response to receiving a command to do so, not in response to an expiration of a timer, and a flushing of a buffer at one of two BSs is not tantamount to a selective deallocation of some, but not all, demodulation resources at a single BS.

Therefore, neither Luschi nor Kadaba, individually or in combination, teaches the features of claim 50 of, upon transmitting first control data, starting, by the BS, a timer, and when a predetermined period of time expires prior to receiving second control data from the MS on an uplink control channel, deallocating, by the BS, demodulation resources allocated to a first uplink control channel associated with the MS while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the MS. Accordingly, the applicants respectfully request that claim 50 may now be passed to allowance.

The applicants have added a new claim 54 to the claim set. Neither Luschi nor Kadaba teaches the RAKE fingers of claim 54, let alone teach a selective deallocation, at a BS, of some but not all of multiple control channel RAKE fingers associated with the MS at the BS. For this reason, and since claim 54 depends upon allowable claim 50, the applicants respectfully request that claim 54 may now be passed to allowance.

35 U.S.C. §103(a) rejection of claims 41-44 and 46-49 as being unpatentable over Kadaba in view of Gopalakrishnan

The Examiner rejected claims 41-44 and 46-49 under 35 U.S.C. §103(a) as being unpatentable over Kadaba in view of Gopalakrishnan. Specifically, with respect to claim

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41, the Examiner contended that Kadaba teaches a method for controlling communications with an MS by a BS comprising steps of storing, by the BS, traffic data from the MS in a traffic data buffer (col. 4, line 56, to col. 5, line 17), determining a link quality metric at the BS (col. 5, lines 18-51), and flushing the traffic data buffer (col. 12, line 14, to col. 13, line 7). The Examiner acknowledged that Kadaba does not teach comparing a link quality metric to a threshold and the link quality metric comparing unfavorably with the threshold; however, the Examiner contended that these features are taught by Gopalakrishnan (col. 4, line 43, to col. 5, line 29; col. 6, lines 24-43). The applicants respectfully disagree with the application of the cited art to claim 41.

As described in detail above, Kadaba merely teaches, in column 12, line 14, to column 13, line 7, that a BS flushes its traffic data buffer in response to receipt of an instruction from an MS to do so. The flushing is not based on any environmental conditions observed by the BS at the BS. Gopalakrishnan, on the other hand, teaches a BS measuring a total received signal power, from all MSs serviced by the BS, to determine if the BS has any received signal power margin to schedule an additional MS. This measurement has nothing to do with any flushing of a buffer but instead concerns whether additional MSs may be admitted. Nothing here teaches a BS self-determining to flush a buffer based on measurements at the BS.

In response to the applicants' previous arguments that Kadaba and Gopalakrishnan do not teach claim 41, the Examiner contended that Kadaba teaches a BS that monitors and MS's reverse channels. The Examiner further contended that Kadaba teaches (i) an MS that determines that a transmission is successful if it receives an acknowledgment and, if so, sends a message to flush a buffer at a BS, and (ii) an MS that can request to be scheduled by an active set base station (transmitting on the R-RUCH) when changing base stations. However, in each instance, these teachings are a BS acting in response to an instruction from an MS.

The Examiner then contended that Gopalakrishnan teaches scheduling data users to transmit based on parameters such as QoS, an amount of data to be transmitted, a time since the last transmission, and a time criticality of the data to be transmitted, which scheduling is so scheduled so as to fairly treat users an minimize interference with other

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sectors or cells. The Examiner further contended that as part of this process, the BS stores information concerning the amount of data to be transmitted, MS capabilities, and QoS parameters or delay requirements, measures channel conditions, and then schedules the MS based on the stored information and measured channel conditions (col. 4, lines 35-65).

That is, the Examiner appears to contend that Gopalakrishnan teaches a BS scheduling an MS based on measured channel conditions. However, in order to combine Kadaba and Gopalakrishnan to teach the features of claim 41, the Examiner must teach a link between the BS scheduling an MS (Gopalakrishnan) and such scheduling forcing the MS to send a buffer flush instruction (Kadaba) back to the BS. The Examiner has not supplied such a link. Therefore the applicants contend that Kadaba and Gopalakrishnan, neither individually nor in combination, teach the features of claim 41 of storing, by the BS, traffic data from the MS in a traffic data buffer, determining a link quality metric at the BS, comparing the link quality metric to a threshold, and when the link quality metric compares unfavorably with the threshold, flushing the traffic data buffer. Accordingly, the applicants respectfully request that claim 41 may now be passed to allowance.

Since claims 42-44 depend upon allowable claim 41, the applicants respectfully request that claims 42-44 also may be passed to allowance.

Referring now to claim 46, in rejecting this claim the Examiner contended that Kadaba teaches a method for controlling communications with a MS by a BS comprising steps of determining, by the BS, a link quality metric at the BS (col. 5, lines 18-51) and deallocating, by the BS, demodulation resources allocated to a first uplink control channel associated with the MS while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the MS (col. 12, line 14, to col. 13, line 7). The Examiner acknowledged that Kadaba does not teach comparing, by the BS, the link quality metric to a threshold and the link quality metric comparing unfavorably with the threshold, but contended that this is taught by Gopalakrishnan (col. 4, line 43, to col. 5, line 29; col. 6, lines 24-43).

In response to the applicant's previous arguments that these features are not taught by Kadaba, the Examiner contended that Kadaba teaches that an MS deems a transmission successful if either of two BSs successfully decodes and acknowledges a data transmission and then sends out a command to the unsuccessful BS to flush it buffer. However, as described above, a flushing of a buffer merely clears up storage space and is not a deallocation of the buffer, and a flushing of a buffer at one of two BSs is not tantamount to a selective deallocation of some, but not all, demodulation resources at a single BS. Therefore, the applicants believe that neither Kadaba nor Gopalakrishnan teaches the features of claim 46 and respectfully request that claim 46 may now be passed to allowance.

The applicants have added a new claim 53 to the claim set. Neither Luschi nor Kadaba teaches the RAKE fingers of claim 53, let alone teach a selective deallocation, at a BS, of some but not all of multiple control channel RAKE fingers associated with the MS at the BS. For this reason, and since claims 47-49 and 53 depend upon allowable claim 46, the applicants respectfully request that claims 47-49 and 53 also may be passed to allowance.

As the applicants have overcome all substantive rejections and objections given by the Examiner and have complied with all requests properly presented by the Examiner, the applicants contend that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore, the applicants respectfully solicit allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter. Furthermore, please charge any additional fees (including any extension of time fees), if any are due, or credit overpayment to Deposit Account No. 50-2117.

Respectfully submitted,
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